

LISTING OF THE CLAIMS

1. (Currently Amended) A method for producing transformed sunflower cotyledons, comprising:
obtaining a cotyledon from a germinated sunflower seedling;
incubating the cotyledon at a temperature between about 0°C and about 10°C;
contacting the cotyledon with a culture of *Agrobacterium* in an infiltration media
comprising 6-benzylaminopurine, one or more cytokinins, and one or more
carbohydrates; culturing the *Agrobacterium*-contacted cotyledon in a first media to
produce transformed cotyledon tissue, wherein the first media has a high osmotic pressure
and said first media comprises at least one carbohydrate selected from the group
consisting of glucose, sucrose, mannitol, fructose, maltose, mannose, or xylose at a
concentration of about 5% (w/v) to about 30% (w/v);
inducing shoot growth from the transformed cotyledon tissue in a second media, wherein
the second media has a low osmotic pressure; and
incubating ~~selecting~~ the transformed cotyledon tissue thus produced in a selection media
comprising at least one selection agent.
2. (Original) The method of claim 1, wherein the high osmotic pressure of the first media is
between about 200 mOsm and about 750 mOsm.
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)

7. (Original) The method of claim 1, wherein the cotyledon is processed along the axis between the root and shoot prior to contacting the cotyledon with the culture of - *Agrobacterium*.
8. (Cancelled)
9. (Cancelled)
10. (Currently Amended) The method of claim [[9]] 1, wherein the carbohydrate in the infiltration media is sucrose.
11. (Currently Amended) The method of claim [[9]] 1, wherein the concentration of the carbohydrate in the infiltration media is less than about 5% (w/v).
12. (Currently Amended) The method of claim [[9]] 1, wherein the cytokinin in the infiltration media is 6-benzylaminopurine.
13. (Currently Amended) The method of claim [[9]] 1, wherein the concentration of the cytokinin in the infiltration media is less than about 0.5 µg/mL.
14. (Cancelled)
15. (Currently Amended) The method of claim [[14]] 1, wherein the selection media comprises glyphosate, paromomycin, G418, or kanamycin.
16. (Original) The method of claim 15, wherein the concentration of the glyphosate in the selection media is from about 0 mM to about 0.5 mM.

17. (Currently Amended) The method of claim [[14]] 1, wherein the transformed cotyledon tissue is sequentially incubated in ~~transferred into~~ a first, second, and third selection media.
18. (Original) The method of claim 17, wherein the first selection media comprises from about 0 mM to about 0.06 mM glyphosate, the second selection media comprises from about 0.075 mM to about 0.25 mM glyphosate, and the third selection media comprises from about 0 mM to about 0.06 mM glyphosate.
19. (Original) The method of claim 1, further comprising the step of culturing the transformed cotyledon tissue to produce transgenic shoots.
20. (Currently Amended) The method of claim [[19]] 1, further comprising the step of culturing transgenic shoots to produce a transgenic sunflower plant.
21. (Original) The method of claim 20, further comprising the step of growing the transgenic sunflower plant to produce transgenic sunflower seeds.
22. (Original) The method of claim 1, wherein the *Agrobacterium* comprises a recombinant nucleic acid vector comprising operatively linked in the 5' to 3' direction:
 - a promoter that functions in a sunflower cell to direct transcription of a structural nucleic acid sequence;
 - a structural nucleic acid sequence;
 - a 3' transcriptional termination signal; and
 - a 3' polyadenylation signal.
23. (Original) The method of claim 22, wherein the nucleic acid vector further comprises a selectable marker.

24. (Original) The method of claim 23, wherein the selectable marker is a kanamycin resistance marker, a hygromycin resistance marker, or a herbicide resistance marker.
25. (Original) The method of claim 22, wherein the promoter is seed selective, tissue selective, constitutive, or inducible.
26. (Original) The method of claim 22, wherein the promoter is the nopaline synthase (NOS), octopine synthase (OCS), mannopine synthase (mas), cauliflower mosaic virus 19S and 35S (CaMV19S, CaMV35S), enhanced CaMV (eCaMV), ribulose 1,5-bisphosphate carboxylase (ssRUBISCO), figwort mosaic virus (FMV), CaMV derived AS4, tobacco RB7, wheat POX1, tobacco EIF-4, lectin protein (Le1), or rice RC2 promoter.
27. (Original) The method of claim 22, wherein the structural nucleic acid sequence is a synthetic, plant, fungal, or bacterial structural nucleic acid sequence.
28. (Cancelled)
29. (Cancelled)